

# PC B Investigating Tangent

Name \_\_\_\_\_

Per. \_\_\_\_\_ Team \_\_\_\_\_

Consider  $\tan x = \frac{\sin x}{\cos x}$

On  $[-2\pi, 2\pi]$ , where will  $\tan x$  be undefined? \_\_\_\_\_

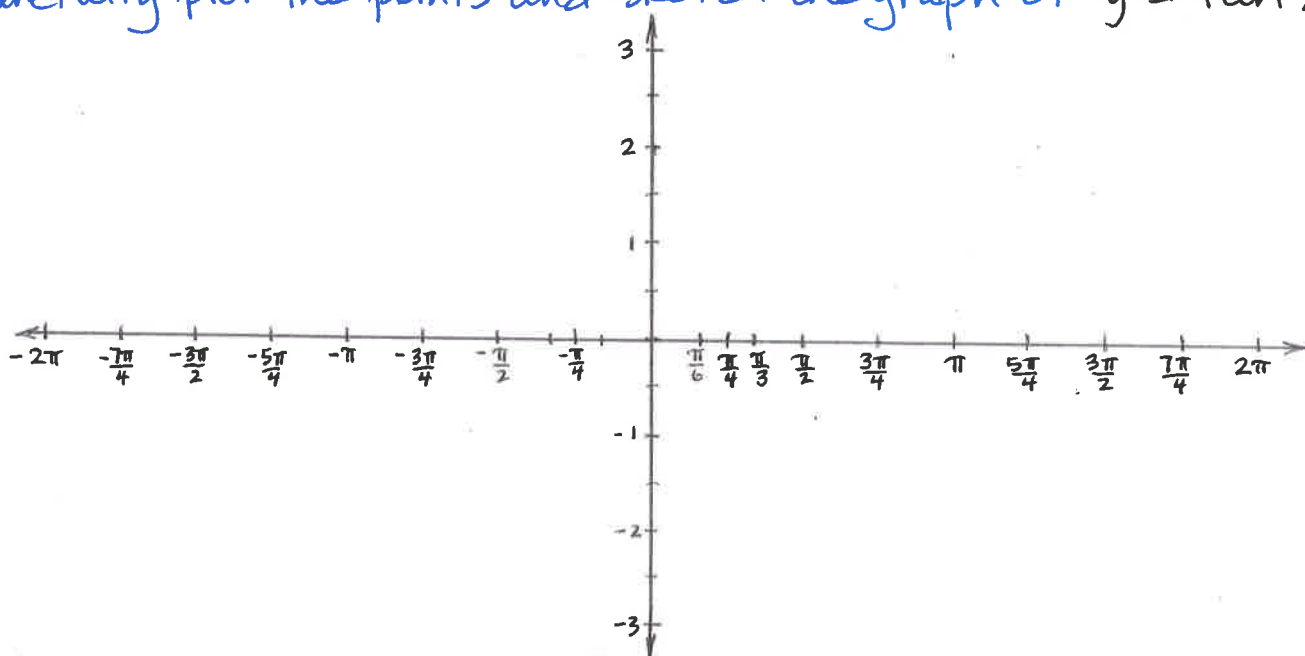
Where will  $\tan x = 0$ ? \_\_\_\_\_

What would you expect to see on the graph of  $y = \tan x$  at these locations?

Use your unit circle and make a few calculations to fill in the table:

$x$	$-\frac{3\pi}{2}$	$-\frac{5\pi}{4}$	$-\pi$	$-\frac{3\pi}{4}$	$-\frac{\pi}{2}$	$-\frac{\pi}{3}$	$-\frac{\pi}{4}$	$-\frac{\pi}{6}$	$0$	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$	$\frac{3\pi}{4}$	$\pi$	$\frac{5\pi}{4}$	$\frac{3\pi}{2}$	$\frac{7\pi}{4}$	$2\pi$
$\tan x$ exact																			
$\tan x$ nearest tenth																			

Carefully plot the points and sketch the graph of  $y = \tan x$



Lightly sketch the graph of  $y = \cos x$  on the same graph above. Compare the graphs: How are they similar? How are they different? Compare the graphs where  $\cos x = 0$ .